



# First record of the recently described *Cyrtodactylus tripuraensis* Agarwal, Mahony, Giri, Chaitanya & Bauer, 2018 (Squamata, Gekkonidae) in Bangladesh

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## Abstract

*Cyrtodactylus tripuraensis* (Agarwal, Mahony, Giri, Chaitanya & Bauer, 2018) was recently described from Tripura state of northeast India. In June 2018, we found a subadult and an adult male individual in Lawachara National Park, Maulvibazar District, Sylhet Division, Bangladesh. We identify the individuals as *C. tripuraensis* based on morphological study. Though the new locality of *C. tripuraensis* is approximately only 40 km away from the nearest locality in Tripura state, India, this is the first record of this species in Bangladesh.

## Key words

Tripura bent-toed gecko; range extension; Lawachara National Park; Bangladesh.

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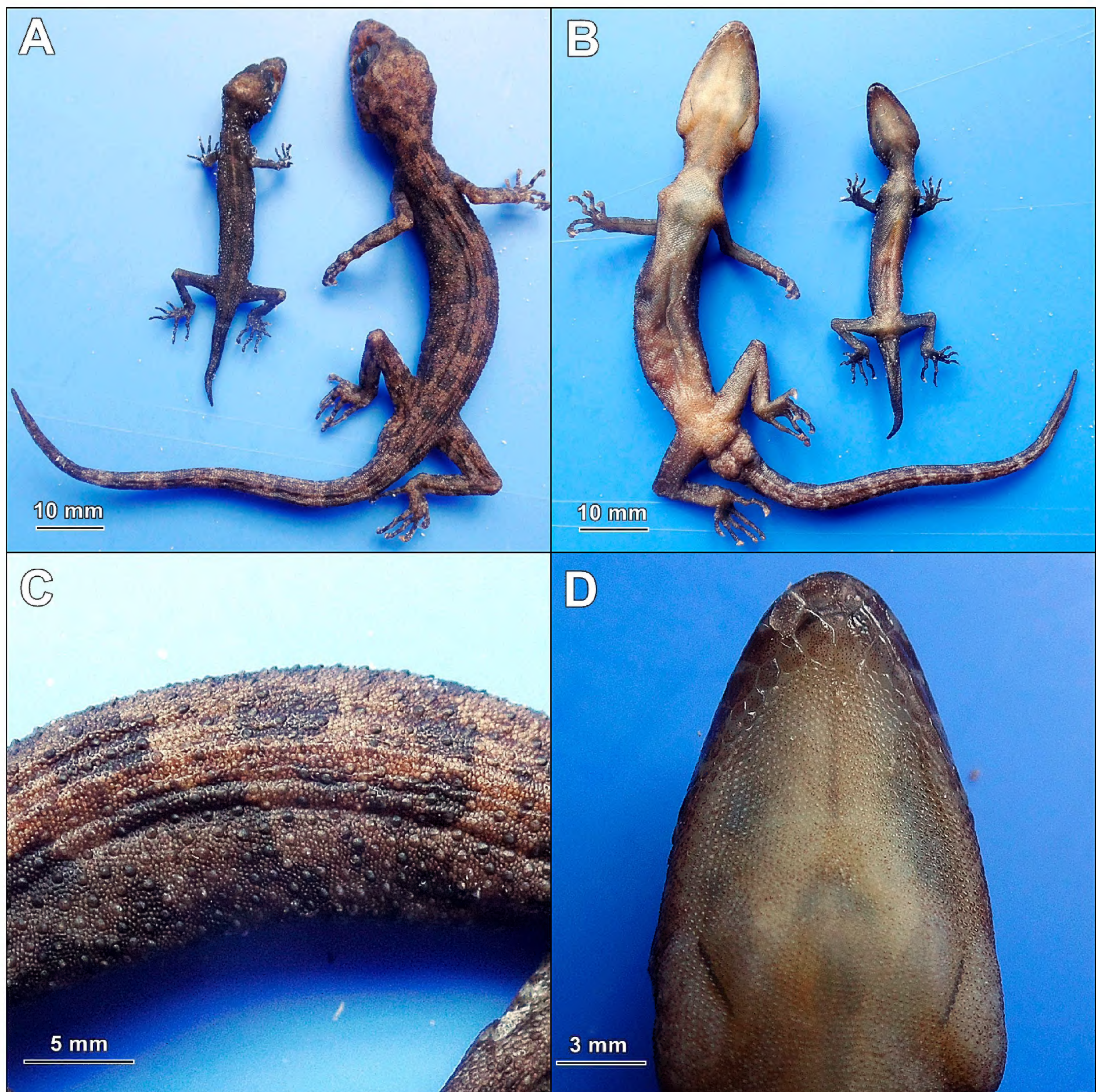
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## Introduction

*Cyrtodactylus* is the most species-rich genus of geckos in the world, which commonly known as Bent-toed geckos. More than half of the species of this genus have been described in the last decade (Grismer et al. 2012, 2014, Uetz 2017). *Cyrtodactylus* is geographically wide-ranging and occupies diverse ecological niches. This genus is distributed eastwards throughout Southeast Asia and the Indo-Australian Archipelago, reaching the Philippines, New Guinea, northern Australia, and the Solomon Islands (Rösler et al. 2007, Uetz 2017, Wood et al. 2012, Mahony 2009, Grismer et al. 2014). Approximately 8 species of this genus are known from neighboring countries of Bangladesh (Agarwal et al. 2018a). Recently Agarwal et al. (2018b) described 2 new species from West Ben-

gal state (*Cyrtodactylus bhupathyi*) and Tripura state (*C. tripuraensis*) of India. Though the distributions of these species are closer to Bangladesh, only 2 species of *Cyrtodactylus* have been recorded here. At first, only *C. khasiensis* Jerdon, 1870 was reported from Bangladesh (Ahsan 1998, Khan 2004). Then Mahony et al. (2009) concluded that *C. khasiensis* recorded from Bangladesh is actually *C. ayeyarwadyensis* Bauer, 2003. In this sense, only *C. ayeyarwadyensis* is recorded from Bangladesh. *Cyrtodactylus ayeyarwadyensis* is considered to occur in the hilly areas of the northeast, east and southeast forested regions in the country (Hasan et al. 2014, Khan 2015). In this study, we collected 2 specimens from Lawachara National Park, which is situated in northeast Bangladesh and described the morphological characteristics. All the morphological characteristics are similar with the





**Figure 1.** *Cyrtodactylus tripuraensis*. **A.** Dorsal view of specimens. **B.** Ventral view of specimens **C.** Circular tubercles on the dorsal side of the body. **D.** Scale pattern of the ventral side of the head.

recently described *C. tripuraensis*, which provides the first known occurrences of *C. tripuraensis* in Bangladesh.

## Methods

We collected 2 individuals (1 adult male and 1 juvenile) from Lawachara National Park during our regular night survey of Bengal Slow Loris (*Nycticebus bengalensis* Lacépède, 1800). Lawachara National Park is a semi ever-green forest situated in the North-east region of Bangladesh. Specimens were collected by hand and photographed. Subsequently they were euthanized, preserved in 10% formalin, later transferred to 70% alcohol, and deposited in the collection of the Department of Zoology, Jagannath University, Dhaka. We used a dissecting microscope to examine the preserved specimens. Morphometric measurements of adult individual were made

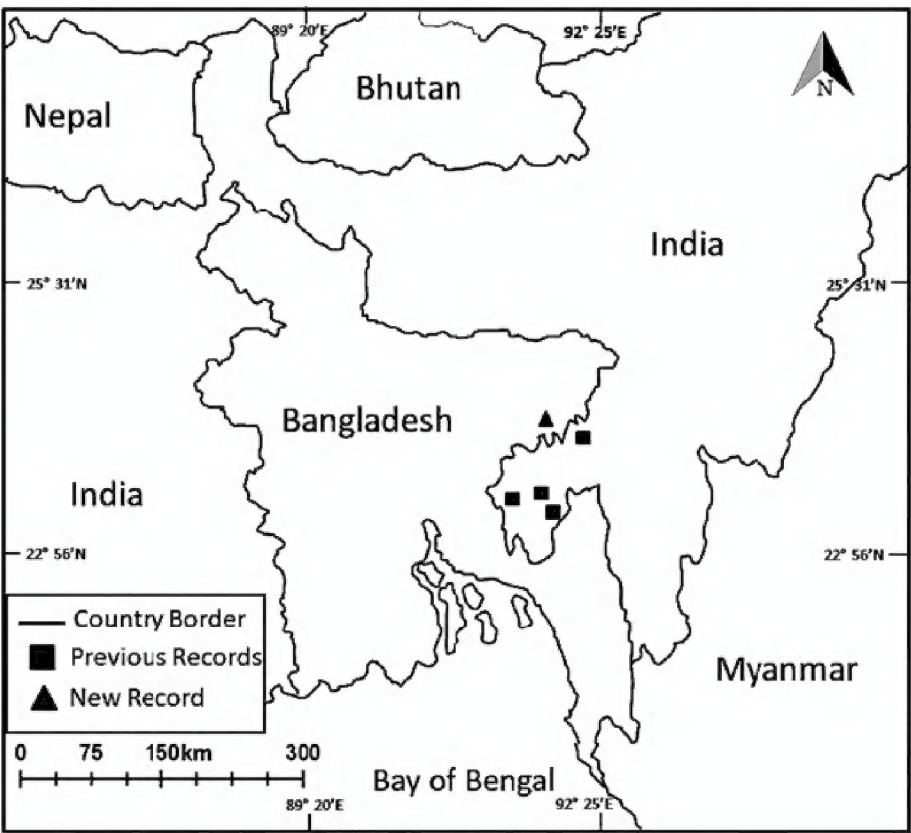
with digital calipers (nearest 0.01 mm) following Agarwal et al. (2018b). The specimens were identified using the original species descriptions (Agarwal et al. 2018b). We also compared these specimens with *C. ayeyarwadyensis* collected from Bangladesh and *C. khasiensis* (Mahony 2009, Mahony et al. 2009).

## Results

**New record.** Bangladesh, Sylhet Division, Moulvibazar District, Kamalganj Upazila, Lawachara National Park (24.32976° N, 091.78938° E; WGS84, 84 m elev.), coll. by Hassan Al-Razi & Marjan Maria, 2 June 2018 at 1915 h (1 subadult, JnUZool-R0318); 3 June 2018 at 1810 h (1 adult male, JnUZool-R0418, Fig. 1).

**Identification.** Collected specimens are identified as *C.*





**Figure 2.** Map showing the previous and present localities of *Cyrtodactylus tripuraensis*.

*tripuraensis* based on the following characters: the snout-vent length of adult male is 66 mm; tail length is 61 mm and trunk length is 34 mm; head is longer (17 mm) than width (11 mm) and head height is 7 mm; 1 pair of elongated postmental scale situated behind the large mental scale (Fig. 1); 20 rows of circular tubercles present at mid-dorsum, 35 rows of mid-body ventral scales and 52 paravertebral tubercles present; specimen has 34 precloacofemoral pores in a single series without precloacal groove. This specimen is different from *C. ayeyarwadyensis* and *C. khasiensis* based on the difference in number of precloacal and precloacofemoral pores. *Cyrtodactylus khasiensis* has 10–12 precloacal pores and *C. ayeyarwadyensis* has 10–28 precloacofemoral pores.

**Habitat.** The first specimen (subadult JnUZool-R0318) was collected from a damp and mossy trunk of *Lophopetalum fimbriatum* Wight, 1840 about 0.5 m from the ground. Another individual (adult male JnUZool-R0418) was collected from a hollow in a damp and mossy old brick wall 1.25 m from the ground.

Discussion

*Cyrtodactylus tripuraensis* is a recently described species of bent-toed gecko from Tripura state of India (Agarwal et al. 2018b). Agarwal et al. (2018b) predicted *C. tripuraensis* should be found in neighboring regions of eastern and southeastern Bangladesh, and southern Assam (e.g.,

Karimganj district) in India. Lawachara National Park is situated in Sreemongal district, which is adjacent to the state of Tripura, India. The nearest locality of *C. tripuraensis* in Rowa Wildlife Sanctuary is approximately 40 km from Lawachara National Park. Other known localities are not so far from the new locality, Lawachara National Park is 87 km away from Sepahijala Wildlife Sanctuary, 88 km from Chobimura and 99 km from Gumti. Habitat type of the collected holotype and paratypes are also similar to the habitat of Lawachara National Park. Agarwal et al. (2018b) found all individuals from 29 to 56 m elevation from the sea level. We found our specimens at 56 m elevation from sea level. This elevation is almost similar to the previous locality of *C. tripuraensis*. Southeastern Bangladesh populations and northern most Bangladesh population are considered as *C. ayeyarwadyensis* (Mahony et al. 2009). These populations are not far from the locality of *C. tripuraensis* (Table 1), including the population from Kaptaimukh Beat, which is located 100 km south of Gumti Wildlife Sanctuary in the same continuous north–south running valley. Agarwal et al. (2018b) recommended conducting further molecular studies on these southeastern populations for confirmation of taxonomic affinity in light of the morphologically similar species *C. tripuraensis*. A molecular study is also needed for our study, but was not possible for us. So, we conducted a morphological study and confirmed the specimen as *C. tripuraensis*.

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Authors’ Contributions

HA and MM collected the data, examined the specimens and took the photographs, SH helped during the fieldwork. MM collected information and HA wrote the text.

References

Agarwal I, Mahony S, Giri VB., Chaitanya R, Bauer AM (2018a): Two new species of bent toed geckos, *Cyrtodactylus* Gray, 1827 (Squamata: Gekkonidae) from Northeast India with comments on

**Table 1.** Known locality records for *Cyrtodactylus tripuraensis*.

Place	Latitude (° N)	Longitude (° E)	Altitude a.s.l. (m)	Reference
Chobimura, Gomati district, Tripura state, India	23.5503	091.6205	36	Agarwal et al. 2018b
Rowa Wildlife Sanctuary, North Tripura, India	24.2906	092.1650	56	Agarwal et al. 2018b
Sepahijala Wildlife Sanctuary, Sepahijala district, India	23.6591	091.3317	29	Agarwal et al. 2018b
Gumti, Gomati district, Tripura state, India	23.4266	091.8194	40	Agarwal et al. 2018b
Lawachara National Park, Maulvibazar District, Sylhet Division, Bangladesh	24.3298	091.7894	56	Present study



- name-bearing types from the region. *Zootaxa* 4420 (3): 334–356. <https://doi.org/10.11646/zootaxa.4420.3.2>
- Agarwal I, Giri VB, Bauer AM (2018b). On the status of *Cyrtodactylus malcolmsmithi* (Constable, 1949). *Breviora* 557: 1–11. <https://doi.org/10.3099/MCZ41.1>
- Ahsan MF (1998) Herpetofauna of Bangladesh: Present status, distribution and conservation. In: de Silva A (Ed) *Biology and Conservation of the Amphibians, Reptiles and Their Habitats in South Asia*, Amphibia and Reptile Research Organization of Sri Lanka, Gampola, 9–17.
- Grismer LL, Wood PL Jr, Lim KKP (2012) *Cyrtodactylus majulah*, a new species of bent-toed Gecko (Reptilia: Squamata: Gekkonidae) from Singapore and the Riau Archipelago. *Raffles Bulletin of Zoology* 60: 487–499.
- Grismer LL, Wood PL Jr, Anuar S, Quah ESH, Muin MA, Mohamed M, Onn CK, Sumarli AX, Loredó AI, Heinz HM (2014) The phylogenetic relationships of three new species of the *Cyrtodactylus pulchellus* complex (Squamata: Gekkonidae) from poorly explored regions in northeastern Peninsular Malaysia. *Zootaxa* 3786 (3): 359–381. <https://doi.org/10.11646/zootaxa.3786.3.6>
- Hasan MK, Khan MMH, Feeroz MM (2014) *Amphibians and Reptiles of Bangladesh—A Field Guide*. Arannayk Foundation, Dhaka, Bangladesh. 191 pp.
- Khan MAR (2004) Checklist of the Herpetofauna of Bangladesh. *Cobra* 57: 1–31.
- Khan MAR (2015) *Wildlife of Bangladesh: Checklist-cum-Guide*. M.J. Alam, Chayabithi, Dhaka, Bangladesh. 568pp.
- Mahony S (2009) Taxonomic status of *Cyrtodactylus khasiensis tamaiensis* (Smith, 1940) and description of a new species allied to *C. chrysopylos* Bauer, 2003 from Myanmar (Reptilia: Gekkonidae). *Hamadryad* 34: 62–74.
- Mahony S, Ahmed M, Hossain MK, Kabir MM, Hasan MK (2009) *Cyrtodactylus ayeyarwadyensis* BAUER, 2003 (Reptilia: Gekkonidae) in Bangladesh with habitat details of new collection localities and a discussion of morphological variation. *Salamandra* 45 (4): 245–250.
- Rösler H, Richards SJ, Günther R (2007) Remarks on morphology and taxonomy of geckos of the genus *Cyrtodactylus* Gray, 1827, occurring east of Wallacea, with descriptions of two new species (Reptilia: Sauria: Gekkonidae). *Salamandra* 43: 193–230.
- Uetz P, Freed P, Hošek J (Eds.) (2017) *The Reptile Database*. <http://www.reptile-database.org>. Accessed on: 2017-11-03)
- Wood PL, Jr, Heinicke MP, Jackman TR, Bauer AM (2012) Phylogeny of bent-toed geckos (*Cyrtodactylus*) reveals a west to east pattern of diversification. *Molecular Phylogenetics and Evolution* 65: 992–1003. <http://doi.org/10.1016/j.ympev.2012.08.025>